



# VirIoT

**Create the IoT Infrastructure you need within minutes**

Today, cloud providers offer services to run IoT applications in their data centers. These services are like LEGO bricks that can be combined to collect, store and process information coming from an external IoT infrastructure that the application provider must have.

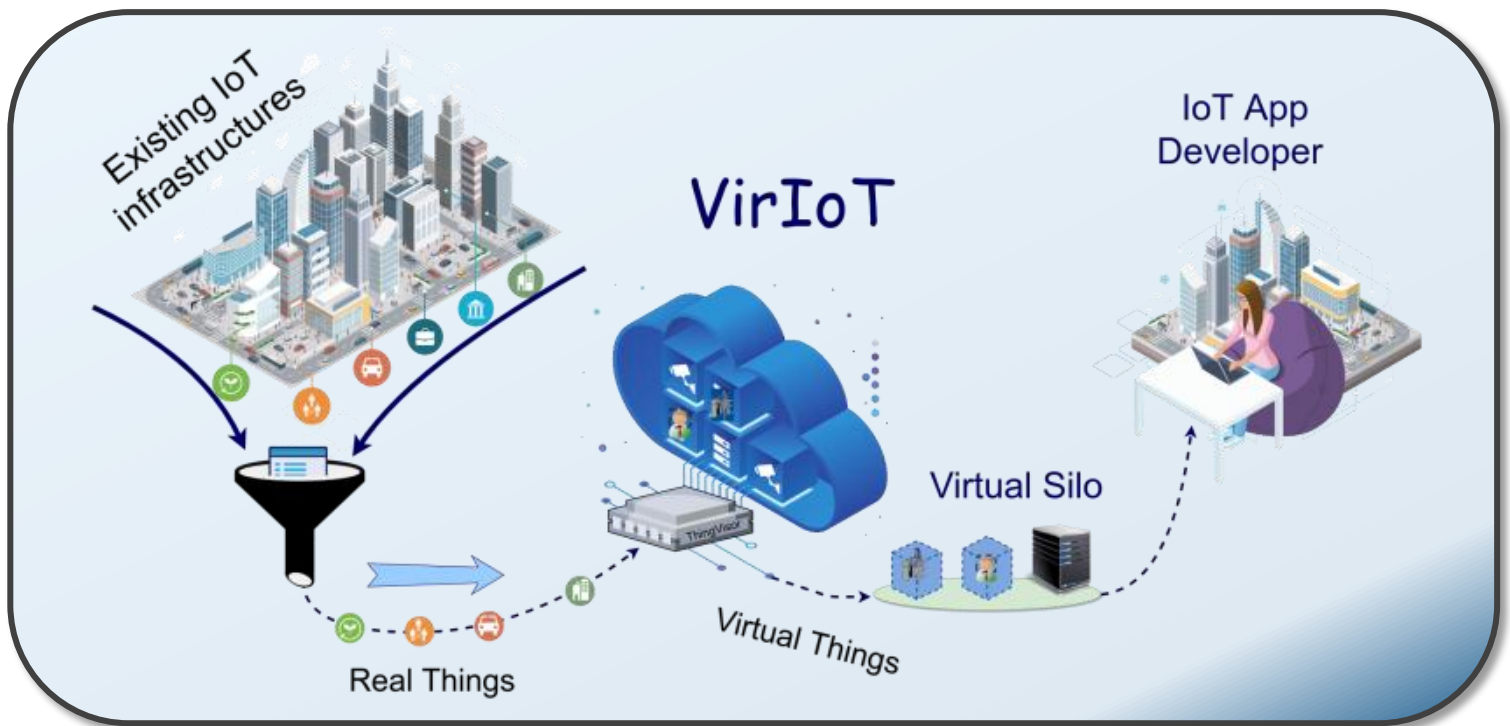
In July 2018 - September 2021, the European Commission (EC) and the Japanese Ministry of Internal Affairs and Communications (MIC) funded the

Fed4IoT project<sup>1</sup>, with the goal of developing new IoT cloud services aimed at reducing infrastructural costs for providers of IoT applications.

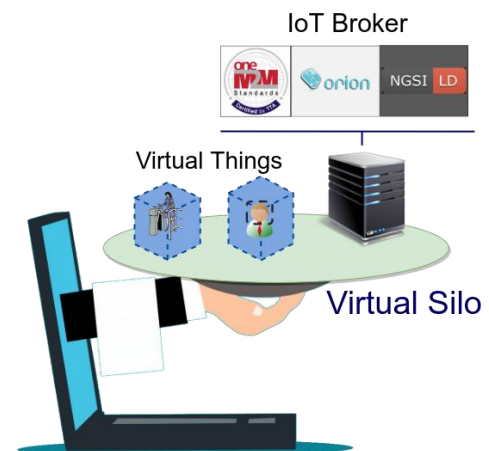
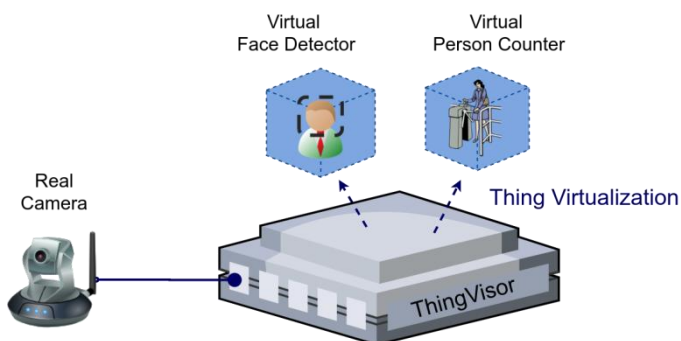
The main project result is a cloud-of-things platform called **VirIoT** that offers **things-as-a-service**, and allows application providers to create virtual IoT infrastructures containing the sensors and actuators their applications need.

---

<sup>1</sup> <https://fed4iot.org/>

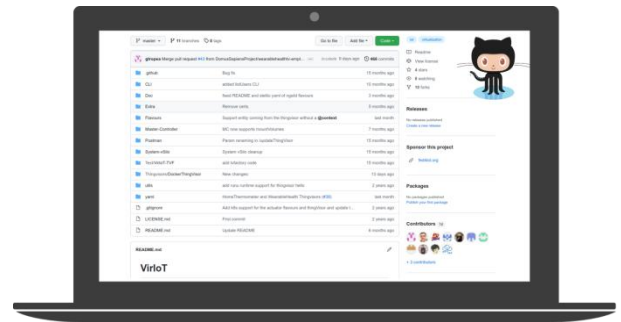


VirIoT exploits services of existing devices to create **Virtual Things**. A Virtual Thing can be a thermometer, a face detector, a person counter, a drone, etc. This device may or may not actually exist. In fact, a Virtual Thing is an emulation of a real thing, just as a virtual machine is an emulation of a real server. The emulation process is done by pluggable VirIoT modules called **ThingVisors**.



Developers can create virtual IoT Infrastructures, called **Virtual Silos**, add the necessary Virtual Things, and finally connect applications to them. These applications run outside VirIoT, for example, within and upstream cloud provider. VirIoT just supplies them with the things they need.

To interact with the Virtual Things, the developer uses a Broker server within the Silo, whose technology can be chosen among an extensible set of technologies, including **oneM2M**, **NGSI**, or **NGSI-LD**.



VirloT is a scalable and cloud-native platform that can run on a centralized or distributed **Kubernetes** cluster. It supports **edge-computing** by optimizing network traffic between zones and allowing users to run their Virtual Silos in the nearest edge zone.

VirloT can be installed and extended by using **Open Source** software available on GitHub <sup>2</sup>. VirloT components are Pods whose Docker images are available on the Docker Hub <sup>3</sup>.

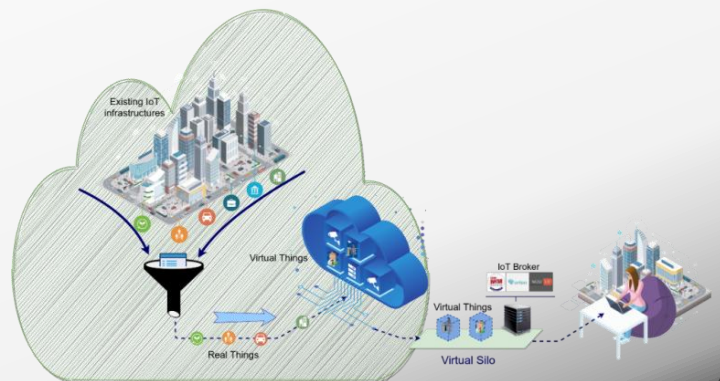
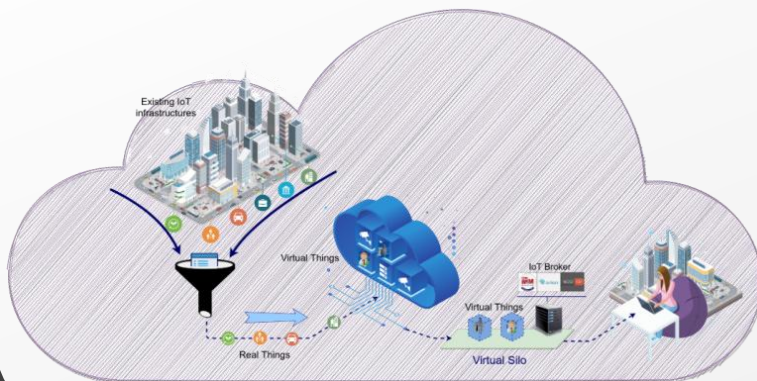
A private company can use VirloT to integrate its IoT devices into a single platform and allow its IoT applications to use isolated virtual silos, making **IoT DevOps** processes more agile, just as more agile is the use of virtual machines instead of real hardware.

A cloud provider can use VirloT to offer new IoT services, not only focused on disseminating and processing data of customers' IoT devices, but also providing customers with the sensors or actuators they need.

## Private Company

## Use cases

## Public Cloud



<sup>2</sup> <https://github.com/fed4iot/VirloT>

<sup>3</sup> <https://hub.docker.com/u/fed4iot>